



ESTIMATED CONTRIBUTION OF CODED WIRE TAGGED RELEASES OF CHINOOK
SALMON (Oncorhynchus tshawytscha) TO THE COMMERCIAL FISHERIES OF
SOUTHEASTERN ALASKA IN 1983

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ADF&G TECHNICAL DATA REPORTS

This series of reports is designed to facilitate prompt reporting of data from studies conducted by the Alaska Department of Fish and Game, especially studies which may be of direct and immediate interest to scientists of other agencies.

The primary purpose of these reports is presentation of data. Description of programs and data collection methods is included only to the extent required for interpretation of the data. Analysis is generally limited to that necessary for clarification of data collection methods and interpretation of the basic data. No attempt is made in these reports to present analysis of the data relative to its ultimate or intended use.

Data presented in these reports is intended to be final, however, some revisions may occasionally be necessary. Minor revision will be made via errata sheets. Major revisions will be made in the form of revised reports.

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ABSTRACT

The contribution of coded wire tagged chinook salmon (*Oncorhynchus tshawytscha*) hatchery, experimental, and wild stock release groups to the Southeastern Alaska troll, fishtrap, gill net, and purse seine fisheries for calendar year 1983 is estimated. Approximately 98% of the commercial catch was harvested in sampled catch strata. The largest catches of chinook salmon not sampled occurred during the 1 October to 31 December 1983 troll fishery. Overall, 72%, 33%, 36%, and 41% of the fishtrap, gill net, purse seine, and troll catches, respectively, were sampled. A total of 306 different tag codes were recovered from the commercial catches during the 1983 calendar year. Releases from Alaska, British Columbia, Washington, Idaho, Oregon, and California were recovered in the catch. Alaska hatchery and experimentally reared chinook salmon contributed an estimated 1,881 fish to the total catch, or 0.64% of the 292,528 commercial chinook salmon harvest. British Columbia tagged releases contributed an estimated 49,522 (16.9%), Washington tagged releases totaled approximately 9,309 (3.2%), Oregon tagged releases contributed an estimated 4,309 (1.5%), Idaho releases contributed 18 (< 0.01%), and California releases totaled 2 chinook salmon. Estimated contributions by region and hatchery did not include either the catch of untagged releases or wild stocks, or of unsampled strata. In addition to hatchery and experimental production, wild stocks of chinook salmon represented by 52 tag codes were present in the commercial catches. The standard error associated with the contribution of each tagged release of fish and with the total contribution of each hatchery and region was estimated using a multivariate hypergeometric model.

KEY WORDS: coded wire tags, chinook salmon, *Oncorhynchus tshawytscha*, Southeastern Alaska, hatchery contributions, variance estimates.

INTRODUCTION

Coded wire tags (CWTs) are used to identify stocks of salmon of both wild and hatchery production. Coded wire tagging and recovery programs serve to evaluate the quality and effectiveness of salmon rearing facilities and to differentiate between natural and hatchery produced salmon in mixed stock fisheries. The data which can be obtained following recovery of the tags may also provide information on migratory timing and direction of travel, survival, rates of growth, age of maturity, and other biological parameters of tagged stocks.

The chinook salmon (*Oncorhynchus tshawytscha*) CWT recovery program was implemented in Southeastern Alaska in 1973. During the 1970's, the Southeastern chinook salmon harvest averaged 320,000 fish, over 90% of which were caught by the hand and power troll fishery. Wild and hatchery stocks of chinook salmon originating from Alaska, British Columbia, Washington, Idaho, Oregon, and California are harvested in Southeastern Alaska. Data from the 1975, 1976, and 1978 troll fishery CWT tag recovery program were published by Davis (1976), Davis and Selin (1977), and Davis et al. (1979). Funk (1981) presents a detailed analysis of the 1979 coded wire tag recoveries. The coded wire tag recovery data for 1982 have been published by Clark et al. (1985).

In 1983, 292,528 chinook salmon were harvested by commercial fisheries in Southeastern Alaska. Age composition, average lengths, and catch statistics by fishery, statistical week, and district have been assembled for all Southeastern Alaska (excluding the Yakutat gillnet fishery) by Wood et al. (in prep.) and for the Yakutat gillnet fishery by McBride (1984).

This report presents the 1983 CWT recovery data for Southeastern Alaska in the form used by Clark et al. (1985) to present the 1982 data. The number of tags and estimated total number of chinook salmon contributed to the Southeastern Alaska commercial catch is presented for each tag code recovered by fishery, area, and time strata sampled, along with the standard errors of each estimate. There was no attempt to expand contributions over unsampled strata. The total contribution and associated standard errors of California, Idaho, Washington, Oregon, British Columbia, and Alaska releases of chinook salmon to the 1983 Southeastern Alaska fisheries is finally estimated for each gear type, area, and time strata. The reader is cautioned that estimated contributions in this report represent only contributions from CWT releases as reported in the Pacific Marine Fisheries Commission CWT release documents. In particular, no attempt has been made to estimate contributions from untagged hatchery releases or from tagged or untagged wild stocks. Therefore, contributions designated by facility, agency, or jurisdiction in this report represent only aggregations of CWT release groups.

STUDY AREA AND CONDUCT OF THE FISHERIES

Southeastern Alaska (Region 1) includes both Federal and Alaskan waters between Cape Suckling on the north and Dixon Entrance on the south (Figure 1). The region is divided into 25 statistical areas (termed districts by management)

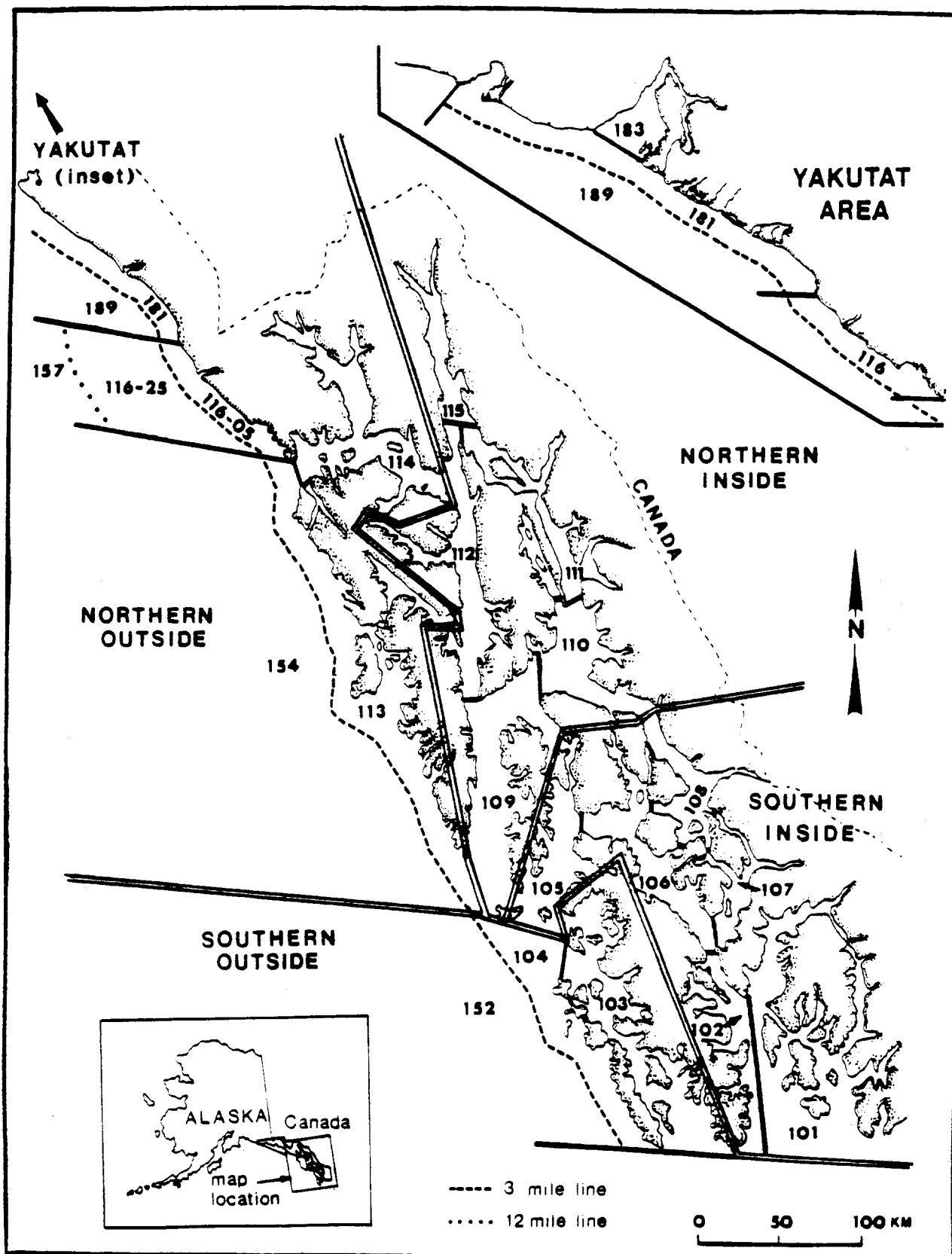


Figure 1. Map of Southeastern Alaska showing the statistical fishing areas and four-area groupings used for analysis of coded wire tag recovery in the troll fishery.

composed of inside Districts 101 to 115: Yakutat area Districts 182, 183, and 186; offshore Districts 150, 152, 154, 157, 181, and 189; and Cape Fairweather to Cape Spencer District 116. Purse seine and gillnet harvests occur in discrete areas, allowing the catch and sample data to be attributed to specific districts. Since the troll fleet is highly mobile, troll catch and sample data are sometimes not attributable to a single statistical district and must be assigned to larger areas which are composed of several districts. Because of the large number of mixed or unknown district and PMFC area catch (and sample) data present in the troll record, quadrant groupings of the data were chosen as the most appropriate to estimate total contribution of a tagged release group to the troll fishery. Troll fishery catch and sample data are also reported by PMFC (or 9-area) grouping and by quadrant (or 4-area) groupings. The statistical districts in each PMFC area and quadrant are listed in Table 1.

Four types of gear are employed to commercially harvest chinook salmon in Southeastern Alaska: fish trap, gill net, purse seine, and troll gear. Fish traps are restricted to the Annette Island Fishery Reserve and harvest relatively few chinook salmon (1970 to 1982 annual average of 180 fish). The gillnet fishery occurs in Statistical Districts 101, 106, 108, 111, 115, 182, and 183. Purse seine harvest is allowed in Districts 101 to 107, 109, 110, and 112 to 114. Catches of chinook salmon by the gill net and purse seine fleet are generally incidental to directed sockeye (*O. nerka*), chum (*O. keta*), pink (*O. gorbuscha*), or coho (*O. kisutch*) salmon fisheries. Annual purse seine catches have averaged 9,460 chinook salmon from 1970 to 1982, while gillnet catches have averaged 14,882 chinook salmon during the same time period.

Commercial troll catch occurs, with some restrictions, in all districts and chinook and coho salmon are primarily the target species. A minimum size limited of 71 mm (28 in) from snout to tail fork is in effect for all troll-caught chinook salmon. The number of troll-caught chinook salmon has averaged 293,069 fish from 1970 to 1982, accounting for 91% of the total chinook salmon harvest in Southeastern Alaska. In 1983, landings from 904 power troll vessels and 988 hand troll vessels was recorded. Hand trollers accounted for about 14% of the chinook salmon catch in 1983.

Troll harvest of chinook salmon was regulated principally by time and area closures. Management of the troll fishery is oriented around an 'accounting year', which for 1983 began on 1 October 1982 and ended on 30 September 1983. The winter portion of the 'accounting year' extended from 1 October 1982 through 14 April 1983 with the following summer portion designating the 'year' of the fishery. The data for this report was taken from calendar year records, 1 January 1983 to 31 December 1983, and thus include catches from both the 1982 and 1983 'accounting years'.

Fishing during the 1983 accounting year winter season was restricted to those areas lying east of the surfline, portions of District 16 north of Cape Spencer, and the waters of Yakutat Bay. Following a month-long closure the summer fishery began on 15 May. A 22-day closure from 9 June through 30 June was implemented to help increase coastwide spawning escapements. The fishery reopened on 1 July and continued for 35 days until 4 August. Troll harvest

Table 1. Statistical areas belonging to each Pacific Marine Fisheries Commission area and to each quadrant of Southeastern Alaska.

PMFC Area	Abbreviation	Statistical Areas (Districts)
Northern Outside	NOUT	116, 157, 181, 183, 186, 189
Central Outside	COUT	113, 154
Southern Outside	SOUT	103, 104, 152
Southern Inside	SIN	101, 102, 150
Southern Intermed.	SNTR	105, 109, 110
Central Inside	CIN	106, 107, 108
Stephens Passage	STEP	111
Central Intermed.	CNTR	112, 114
Lynn Canal	LYNN	115
Quadrant Area	Name (Tag Lab)	Statistical Area (District)
Northern Outside	Northwest	113, 114, 116, 154, 157, 181, 183, 186, 189
Northern Inside	Northeast	109, 110, 111, 112, 115
Southern Outside	Southwest	103, 104, 150, 152
Southern Inside	Southeast	101, 102, 105, 106, 107, 108

of all species of salmon except chinook continued until 1 October. Fishermen were required to return to the water all chinook salmon caught incidentally during this period. The 1984 accounting year winter fishery began on 1 October 1983 and continued through the end of the year with the same area restrictions noted above. Management and compilation of the data for all other gear types follows the calendar year.

Catch and sample data were analyzed by statistical week for the net fisheries and by either statistical week or grouped statistical weeks for the troll fishery¹. Purse seine and gillnet harvests were regulated by discrete openings, allowing catch and sample data to be assigned to distinct statistical weeks. Troll deliveries may have included catch from multiple statistical weeks which were arbitrarily assigned to a single statistical week. Therefore, some errors exist in the commercial catch, sample size, and tag recovery data which cannot be resolved. Due to small catches during the winter fishery from 1 January to 15 April 1983, all data were grouped into one time stratum.

METHODS

Catch Sampling

Samplers were stationed at the Southeastern ports of Craig, Ketchikan, Port Alexander, Petersburg, Sitka, Juneau, Metlakatla, Excursion Inlet, and Pelican. Sampling was also conducted in Elfin Cove, Hoonah, Wrangell, Angoon, Gedney Harbor, Security Cove, Point Baker, and Yakutat during times of peak deliveries. Sampling was conducted on fish landed by tenders of both the net and troll fisheries and from landings of individual boats. Random sampling of at least 20% of the fish harvested by gear type, district, and week was intended. The following statistics were recorded for each commercial boat or tender sampled: port of landing, processor, date sold and landed, boat identification, fishing gear, statistical area or areas of harvest, sample type (random or select), number of fish sampled (by species) for a missing fin, number of adipose clipped fish counted and marked, and the snout to fork length, the appearance of each adipose clip (good or questionable), and flesh color (red or white) of each fish lacking an adipose fin. When a salmon without an adipose fin was found, the head was marked with a numbered plastic strap tag. Samplers subsequently attempted to retrieve all marked heads after the fish were processed, however, some heads were lost between placement of the head strap and shipment to the tag lab.

Tag Decoding

Chinook salmon heads which arrived at the tag lab were examined for the presence of a CWT. If the head contained a CWT, the tag was removed and decoded.

¹ A statistical week is a 7-day period beginning at 12:01 AM Sunday and running through 12:00 midnight the following Saturday. Each week of the year is sequentially numbered. A list of the weeks and corresponding calendar dates for 1983 are listed in Table 2.

Table 2. Statistical weeks and corresponding calendar dates in 1983.

Stat Week	First day of Week		Last day of Week		Stat Week	First day of Week		Last day of Week	
1	Jan	1	Jan	1	28	Jul	3	Jul	09
2	Jan	2	Jan	8	29	Jul	10	Jul	16
3	Jan	09	Jan	15	30	Jul	17	Jul	23
4	Jan	16	Jan	22	31	Jul	24	Jul	30
5	Jan	23	Jan	29	32	Jul	31	Aug	6
6	Jan	30	Feb	5	33	Aug	7	Aug	13
7	Feb	6	Feb	12	34	Aug	14	Aug	20
8	Feb	13	Feb	19	35	Aug	21	Aug	27
9	Feb	20	Feb	26	36	Aug	28	Sep	3
10	Feb	27	Mar	5	37	Sep	4	Sep	10
11	Mar	6	Mar	12	38	Sep	11	Sep	17
12	Mar	13	Mar	19	39	Sep	18	Sep	24
13	Mar	20	Mar	26	40	Sep	25	Oct	1
14	Mar	27	Apr	2	41	Oct	2	Oct	8
15	Apr	3	Apr	09	42	Oct	9	Oct	15
16	Apr	10	Apr	16	43	Oct	16	Oct	22
17	Apr	17	Apr	23	44	Oct	23	Oct	29
18	Apr	24	Apr	30	45	Oct	30	Nov	5
19	May	1	May	7	46	Nov	6	Nov	12
20	May	8	May	14	47	Nov	13	Nov	19
21	May	15	May	21	48	Nov	20	Nov	26
22	May	22	May	28	49	Nov	27	Dec	3
23	May	29	Jun	4	50	Dec	4	Dec	10
24	Jun	5	Jun	11	51	Dec	11	Dec	17
25	Jun	12	Jun	18	52	Dec	18	Dec	24
26	Jun	19	Jun	25	53	Dec	25	Dec	31
27	Jun	26	Jul	2					

All information was entered into a Honeywell mainframe computer located at the University of Alaska, Fairbanks, and later copied onto tape and stored at the State of Alaska's IBM mainframe computer located in Juneau, Alaska.

Commercial Catch Data

Commercial catch data were obtained from fish tickets received from buyers of fish. Each buyer is required by Alaskan statute to maintain a record for each delivery of the type of vessel and gear, the date of landing, the number and pounds of each species, and the statistical area of capture. During summarization of the data, sample sizes which exceeded the catch encountered in a few strata having small catches. In these cases, the sample size was made equal to the catch. A total catch of 292,528 was obtained from fish tickets tabulated as of 27 December 1984. Because some catch (approximately 0.1% the total) could not be assigned to a troll strata, the catch as totaled in this report is slightly below the most current official total.

Tagging and release data associated with each microwire tag code are published by the PMFC (Johnson 1985). The species, run type, brood year, agency conducting the tagging study, hatchery of rearing (or release site for wild stocks), release site, month and year of release, estimated number of fish released carrying a coded wire tag, estimated number of untagged fish released, estimated percentage of tagged fish which shed the tag before release, and type of production (hatchery, experimental, or wild) are reported for each tag code. The estimated contribution of chinook salmon belonging to each tag code recovered in the fishery were merged with the PMFC tagging data and are being published under separate cover as appendices to this report¹. The fish age at recovery is expressed in European notation². The freshwater age of fish released from wild stocks is assumed to be the same age of the fishes age at the time of tagging. Commercial catch data, CWT recovery data, and the tagging and release data are accessible from tapes located at the State's IBM mainframe located in Juneau or on the University of Alaska's (Honeywell) mainframe. Data on the mainframe was downloaded to floppy disks and summarized with basic and pascal language programs operating on microcomputers.

¹ The appendix table are available on request from the Alaska Department of Fish and Game, Division of Commercial Fisheries, P.O. Box 3-2000, Juneau, Alaska 99802.

² European notation: Numerals preceding the decimal refer to the number of freshwater annuli, numerals following the decimal are the number of marine annuli. Total age from the brood year is the sum of these two numbers plus one.

Estimation Procedures

Methods of estimating the number of tags of a given tag code in the commercial catch and the variance of this estimate, the number of tagged fish in the entire release group identified by the given tag code and the variance of this estimate, and the total number of fish originating from a particular agency or geographic region in the commercial catch and the variances and covariances associated with this estimate are derived and discussed at length in Clark and Bernard (in prep.). This method estimates the total number of fish of a given release group in a time-area-gear stratum by adjusting the number of tags decoded with expansion factors for lost tags, lost heads, the unsampled fraction of commercial catch, and the untagged fish in the release group. The variance of this estimate is, in part, a function of the uncertainty in estimating the number of tags of a given tag code in the lost tags, the lost heads, and the unsampled fraction of the commercial catch. The variance is also dependent upon the uncertainty of the tagged to untagged ratio in a given release group in the commercial catch, which in turn is dependent upon the tagged to untagged ratio in the hatchery release.

Let θ be the proportion of fish tagged of a given release group (total number of tags inserted less tag loss and mortalities of tagged fish, divided by the total number of tagged and untagged fish), n_2 be the number of fish sampled out of N total fish caught in a stratum of interest in the commercial fishery, a_1 be the number of fish observed without adipose fins of which a_2 heads arrive at the lab (the difference being the number of heads lost), m_1 be the number of tags detected of which m_2 tags were decoded (the difference being the number of tags lost in the lab), and m_c be the number of tags of a given tag code found in the stratum of interest. The estimate of the number of tags of the given tag code in the stratum (\hat{C}_T) is:

$$\hat{C}_T = \left(\frac{N}{n_2} \right) \left(\frac{a_1}{a_2} \right) \left(\frac{m_1}{m_2} \right) m_c$$

The estimated number of fish of the release group identified by the given tag code and harvested in the stratum of interest (\hat{C}_R) is:

$$\hat{C}_R = \left(\frac{N}{n_2} \right) \left(\frac{a_1}{a_2} \right) \left(\frac{m_1}{m_2} \right) \left(\frac{m_c}{\theta} \right)$$

The estimated variances of \hat{C}_T and \hat{C}_R , $S^2(\hat{C}_T)$ and $S^2(\hat{C}_R)$ respectively, are:

$$S^2(\hat{C}_T) = \frac{m_1^2 (m_2-1) a_1^2 (a_2-1) N^2 (n_2-1) m_C}{m_2^2 (m_1-1) a_2^2 (a_1-1) n_2^2 (N-1)} \left(\frac{m_C m_1 a_1 N}{m_2 a_2 n_2} - 1 \right) \\ + \left(\frac{N}{n_2} \right)^2 \left(\frac{a_1}{a_2} \right)^2 \left(\frac{m_1}{m_2} \right)^2 m_C - \left(\frac{m_C m_1 a_1 N}{m_2 a_2 n_2} \right)^2$$

and

$$S^2(\hat{C}_R) = \frac{m_1^2 (m_2-1) a_1^2 (a_2-1) N^2 (n_2-1) m_C}{m_2^2 (m_1-1) a_2^2 (a_1-1) n_2^2 (N-1) \Theta} \left(\frac{m_C m_1 a_1 N}{m_2 a_2 n_2 \Theta} - 1 \right) \\ + \left(\frac{N}{n_2} \right)^2 \left(\frac{a_1}{a_2} \right)^2 \left(\frac{m_1}{m_2} \right)^2 \frac{m_C}{\Theta^2} - \left(\frac{m_C m_1 a_1 N}{m_2 a_2 n_2 \Theta} \right)^2$$

Estimates of the total number of tags and total number of fish, which belong to a given tagged release in the 1982 commercial harvest are calculated by summing the estimated number of tags and fish estimated in the catch for each individual time-area-gear sampling strata. Assuming that each sampling strata is independent of other sampling strata, the variance of the total contribution is found by summing variances over strata. The standard error is the square root of the variance.

To estimate the standard error of the total contribution by hatchery or jurisdiction to certain gear strata, a multivariate hypergeometric distribution replaces the univariate hypergeometric distribution (Clark and Bernard, in prep.). One result of this is acknowledgment of a significant and negative covariance between the estimated contribution of different tag codes which originate from the same hatchery or jurisdiction (into the same time-area-gear stratum):

$$\text{Cov}(\hat{C}_{R_1}; \hat{C}_{R_2}) = \frac{m_{C_1} m_{C_2} m_1^2 a_1^2 N^2}{m_2^3 a_2^3 n_2^3 \Theta_1 \Theta_2} \left[\left(m_2 - \frac{m_1 - m_2}{m_1 - 1} \right) \right. \\ \left. \left(a_2 - \frac{a_1 - a_2}{a_1 - 1} \right) \left(n_2 - \frac{N - n_2}{N - 1} \right) - m_2 a_2 n_2 \right]$$

where for a defined stratum C_{R_x} is the number of fish of tag release x in the commercial catch, m_{C_x} is the number of tags of tag code x recovered, and θ_x is the proportion of fish tagged of tag code x . The variance of the total estimated contribution of each agency and jurisdiction for n number of tag codes is calculated as:

$$s^2 \left(\sum_{i=1}^n \hat{C}_{R_i} \right) = \sum_{i=1}^n s^2 (\hat{C}_{R_i}) + 2 \sum_{i < j} \text{Cov} (\hat{C}_{R_i}; \hat{C}_{R_j})$$

The implicit assumptions in the preceding method of estimating the contribution and variances, in general, pertain to the randomness of each sampling event.

In the majority of release groups, an estimate of the percentage of tagged fish which shed the coded wire tag before being released was obtained. In the few groups where no attempt was made to estimate coded wire tag loss before release, a tag loss value of 3.9% was assumed and the numbers of marked and unmarked chinook salmon reported by Johnson (1984) were adjusted accordingly.

RESULTS

The goal of sampling at least 20% of the commercial chinook salmon catch was exceeded for all gear types. Overall, 33% of the gillnet catch was sampled (Table 3). No fish were sampled in the terminal set gillnet fisheries of District 182 since no coded microwire tagged chinook salmon were expected to return to Yakutat area rivers. In Yakutat District 1983, Yakutat Bay, the sampling fraction was 13% (53 of 395 fish).

A total of 36% of the purse seine catch was sampled (Table 4). With the exception of District 107 (in which 0 of the 6 purse seine harvested chinook salmon were sampled) all districts were sampled at proportions at or exceeding 0.20.

Overall, 32% of the commercial troll caught fish were sampled when grouped by district (Table 5), 36% were sampled by PMFC area (Table 6), and 41% by quadrant area (Table 7). The percentage of the catch sampled increased when it was possible for samples from mixed district catches to be assigned to PMFC or quadrant area strata. The 1 October to 31 December fishery was sampled less than any other major time or area stratum. All troll districts except 107, 108, 111, 115, and 183 had sampling proportions exceeding 0.19. About 4% (316 of the 7,233 fish) assignable to Districts 107, 108, 111, 115, and 183 were inspected for missing adipose fins. Overall, 111,647 troll caught fish were examined for a missing adipose fin and assigned a quadrant of catch. Ninety-

Table 3. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and district for chinook salmon harvested by fishtrap and by the gillnet fleet in South-eastern Alaska in 1983.

Stat Week	Fishtrap			Gillnet District																							
	101			101			106			108			111			115			182			183			TOTAL		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
25				4	0	0.00																191	19	0.10	195	19	0.10
26				292	140	0.48	25	2	0.08				138	69	0.50	39	14	0.36	195	0	0.00	37	15	0.41	726	240	0.33
27				400	205	0.51	126	95	0.75				215	135	0.63	84	0	0.00	186	0	0.00	25	0	0.00	1036	435	0.42
28	50	45	0.90	150	68	0.45	99	45	0.45				182	112	0.62	258	145	0.56	138	0	0.00	19	0	0.00	846	370	0.44
29	74	69	0.93	61	24	0.39	14	14	1.00				41	41	1.00	256	61	0.24	39	0	0.00	27	0	0.00	438	140	0.32
30	40	19	0.47	112	68	0.61	44	15	0.34				15	1	0.07	208	13	0.06	8	0	0.00	27	0	0.00	414	97	0.23
31	11	1	0.09	80	28	0.35	25	21	0.84				112	4	0.04	302	31	0.10	3	0	0.00	9	2	0.22	531	86	0.16
32	7	1	0.14	65	30	0.46	3	2	0.67				96	89	0.93	224	35	0.16	12	0	0.00	14	12	0.86	414	168	0.41
33	7	0	0.00	19	17	0.89	49	8	0.16				24	2	0.08	166	42	0.25				36	0	0.00	294	69	0.23
34	4	4	1.00	9	7	0.78	12	12	1.00				16	16	1.00	44	17	0.39				3	0	0.00	84	52	0.62
35	1	0	0.00	23	13	0.57	25	14	0.56	6	3	0.50	16	2	0.13	103	10	0.10				4	4	1.00	177	46	0.26
36				17	10	0.59	22	22	1.00	7	4	0.57	19	0	0.00	310	63	0.20				2	1	0.50	377	100	0.27
37				18	4	0.22	19	19	1.00	18	18	1.00	12	9	0.75	19	7	0.37							86	57	0.66
38				4	0	0.00	18	17	0.94	14	14	1.00	1	0	0.00	46	18	0.39							83	49	0.59
39				10	1	0.10	4	3	0.75	2	0	0.00	1	0	0.00	11	4	0.36				1	0	0.00	29	8	0.28
40							82	0	0.00							35	19	0.54							117	19	0.16
41																13	0	0.00							13	0	0.00
42																1	0	0.00							1	0	0.00
Total	194	139	0.72	1264	615	0.49	567	289	0.51	47	39	0.83	888	480	0.54	2119	479	0.23	581	0	0.00	395	53	0.13	5861	1955	0.33

Table 4. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and district for chinook salmon harvested by the purse seine fleet in Southeastern Alaska in 1983.

Stat Week	Purse Seine District																							
	101			102			103			104			105			106			107			109		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
28										2953	1004	0.34												
29	40	25	0.63							1018	454	0.45												
30	102	102	1.00	18	6	0.33				1172	455	0.39												
31	130	72	0.55	15	1	0.07				1712	345	0.20										24	24	1.00
32	49	15	0.31	10	1	0.10				852	324	0.38										4	2	0.50
33	27	11	0.41				86	2	0.02	1381	351	0.25	1	1	1.00	2	0	0.00	6	0	0.00	8	8	1.00
34	28	28	1.00	28	19	0.68	24	24	1.00	539	409	0.76				7	3	0.43						
35	18	18	1.00	5	5	1.00	30	30	1.00	501	339	0.68	15	15	1.00							31	31	1.00
36	2	2	1.00	13	13	1.00																1	0	0.00
37																								
38				1	0	0.00																		
Total	396	273	0.69	90	45	0.50	140	56	0.40	10128	3681	0.36	16	16	1.00	9	3	0.33	6	0	0.00	68	65	0.96

Stat Week	Purse Seine District														
	110			112			113			114			TOTAL		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
28													2953	1004	0.34
29				63	63	1.00							1121	542	0.48
30				83	52	0.63	179	113	0.63	23	10	0.43	1577	738	0.47
31	94	78	0.83	121	44	0.36	361	62	0.17	113	18	0.16	2570	644	0.25
32	21	7	0.33	60	24	0.40	1019	261	0.26	16	7	0.44	2031	641	0.32
33				75	0	0.00	331	23	0.07				1917	396	0.21
34				12	2	0.17	120	36	0.30				758	521	0.69
35				8	2	0.25	3	3	1.00				611	443	0.73
36													16	15	0.94
37															
38										26	0	0.00	27	0	0.00
Total	115	85	0.74	422	187	0.44	2013	498	0.25	178	35	0.20	13581	4944	0.36

Table 5. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and district for chinook salmon harvested by hand and power troll gear in Southeastern Alaska in 1983 (1/1/83 to 12/31/83).

Stat Week	Troll District																													
	101			102			103			104 & 152			105			106			107			108			109			110		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1-16	302	160	0.53	559	285	0.51	2067	232	0.11	470	166	0.35	550	221	0.40	738	265	0.36	515	0	0.00	317	0	0.00	1734	895	0.52	65	8	0.12
21-22	419	107	0.26	2010	295	0.15	2301	705	0.31	8132	2029	0.25	1100	464	0.42	291	69	0.24	1189	23	0.02	13	6	0.46	1765	965	0.55	1077	498	0.46
23-24	862	404	0.47	4905	1745	0.36	1953	1011	0.52	8682	5632	0.65	1200	192	0.16	1058	666	0.63	1230	162	0.13	18	0	0.00	3242	1860	0.57	1701	1087	0.64
27-28	1305	566	0.43	2792	1260	0.45	1269	422	0.33	5723	1047	0.18	893	33	0.04	1690	216	0.13	422	0	0.00				1831	1192	0.65	1081	339	0.31
29	713	425	0.60	1381	647	0.47	623	262	0.42	2475	561	0.23	263	263	1.00	252	178	0.71	181	0	0.00	11	0	0.00	1589	1200	0.76	591	312	0.53
30	949	583	0.61	1763	508	0.29	631	119	0.19	1828	239	0.13	278	109	0.39	944	261	0.28	3	0	0.00				1479	1040	0.70	951	310	0.33
31-32	1194	941	0.79	2134	615	0.29	653	343	0.53	2641	820	0.31	531	108	0.20	963	291	0.30	33	0	0.00	12	0	0.00	2510	1817	0.72	1152	679	0.59
40-53	1749	0	0.00	946	0	0.00	908	0	0.00	123	0	0.00				460	2	0.00	465	0	0.00	638	0	0.00	2573	417	0.16	1428	0	0.00
Total	7493	3186	0.43	16490	5355	0.32	10405	3094	0.30	30074	10494	0.35	4815	1390	0.29	6396	1948	0.30	4038	185	0.05	1009	6	0.01	16723	9386	0.56	8046	3233	0.40

Troll District																														
Stat Week	111			112			113 & 154			114			115			116 & 157			181			183			189			TOTAL		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1-16				25	15	0.60	8538	1606	0.19	2100	924	0.44				526	526	1.00				147	0	0.00				18653	5303	0.28
21-22				270	0	0.00	9895	4625	0.47	2847	387	0.14				9784	1895	0.19	169	0	0.00	255	0	0.00	50	50	1.00	41567	12118	0.29
23-24				694	444	0.64	17505	10383	0.59	4647	1129	0.24				10563	5107	0.48	183	113	0.62	512	0	0.00	261	216	0.83	59216	30151	0.51
27-28				845	606	0.72	26378	5342	0.20	1770	58	0.03	8	0	0.00	889	225	0.25				373	0	0.00	249	0	0.00	47518	11306	0.24
29				745	745	1.00	10207	2340	0.23	1108	418	0.38	2	2	1.00	761	148	0.19	23	0	0.00	310	72	0.23				21235	7573	0.36
30				671	242	0.36	12383	2139	0.17	1082	51	0.05	3	0	0.00	636	44	0.07				272	0	0.00	191	0	0.00	24064	5645	0.23
31-32				1203	550	0.46	25478	6141	0.24	2693	474	0.18	1	0	0.00	3943	963	0.24	156	0	0.00	173	51	0.29	530	0	0.00	46000	13793	0.30
40-53	89	0	0.00	132	0	0.00	2905	199	0.07	1750	0	0.00	41	0	0.00	3	0	0.00										14210	618	0.04
Total	89	0	0.00	4585	2602	0.57	113289	32775	0.29	17997	3441	0.19	55	2	0.04	27105	8908	0.33	531	113	0.21	2042	123	0.06	1281	266	0.21	272463	86507	0.32

Table 6. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and nine area (PMFC area) grouping for chinook salmon harvested by hand and power troll gear in Southeastern Alaska in 1983 (1/1/83 to 12/31/83).

Stat Week	PMFC Troll Area																													
	NOOT			COOT			SOOT			SIN			SNTR			CIN			STEP			CNTR			LYNN			TOTAL		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1-16	673	673	1.00	8538	1606	0.19	2537	572	0.23	861	546	0.63	2349	1124	0.48	1570	265	0.17				2125	939	0.44				18653	5725	0.31
21-22	10258	2337	0.23	9895	4713	0.48	10433	4261	0.41	2429	477	0.20	3942	1981	0.50	1493	98	0.07				3117	387	0.12				41567	14254	0.34
23-24	11519	7744	0.67	17505	10423	0.60	10635	9491	0.89	5767	2602	0.45	6143	3389	0.55	2306	888	0.39				5341	1642	0.31				59216	36179	0.61
27-28	1511	225	0.15	26378	5342	0.20	6992	1694	0.24	4097	1907	0.47	3805	1564	0.41	2112	216	0.10				2615	752	0.29	8	0	0.00	47518	11700	0.25
29	1094	220	0.20	10207	2565	0.25	3098	1623	0.52	2094	1072	0.51	2443	1858	0.76	444	178	0.40				1853	1222	0.66	2	2	1.00	21235	8740	0.41
30	1099	182	0.17	12383	2171	0.18	2459	750	0.31	2712	1121	0.41	2708	1512	0.56	947	261	0.28				1753	293	0.17	3	0	0.00	24064	6290	0.26
31-32	4802	1014	0.21	25478	6141	0.24	3294	2169	0.66	3328	1569	0.47	4193	2604	0.62	1008	291	0.29				3896	1055	0.27	1	0	0.00	46000	14843	0.32
40-53	3	0	0.00	2905	199	0.07	1031	0	0.00	2695	0	0.00	4001	417	0.10	1563	2	0.00	89	0	0.00	1882	0	0.00	41	0	0.00	14210	618	0.04
Total	30959	12395	0.40	113289	33160	0.29	40479	20560	0.51	23983	9294	0.39	29584	14449	0.49	11443	2199	0.19	89	0	0.00	22582	6290	0.28	55	2	0.04	272463	98349	0.36

Table 7. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and four area (quadrant) grouping for chinook salmon harvested by hand and power troll gear in Southeastern Alaska in 1983 (1/1/83 to 12/31/83).

	Troll Quadrant														
	Northwest			Southwest			Northeast			Southeast			TOTAL		
Stat	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
Week	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1-16	11311	3302	0.29	2537	572	0.23	1824	918	0.50	2981	1117	0.37	18653	5909	0.32
21-22	23000	11653	0.51	10433	4261	0.41	3112	1517	0.49	5022	1060	0.21	41567	18491	0.44
23-24	33671	23819	0.71	10635	9491	0.89	5637	3641	0.65	9273	4410	0.48	59216	41361	0.70
27-28	29659	5952	0.20	6992	1694	0.24	3765	2226	0.59	7102	2632	0.37	47518	12504	0.26
29	12409	3302	0.27	3098	1623	0.52	2927	2535	0.87	2801	1596	0.57	21235	9056	0.43
30	14564	2968	0.20	2459	750	0.31	3104	1645	0.53	3937	1668	0.42	24064	7031	0.29
31-32	32973	9494	0.29	3294	2169	0.66	4866	3046	0.63	4867	1968	0.40	46000	16677	0.36
40-53	4658	199	0.04	1031	0	0.00	4263	417	0.10	4258	2	0.00	14210	618	0.04
Total	162245	60689	0.37	40479	20560	0.51	29498	15945	0.54	40241	14453	0.36	272463	111647	0.41

eight thousand three hundred and forty-nine (88%) of these fish could be assigned to a PMFC area, and 86,507 (77%) could be assigned to a district of catch. The differing totals for the three time and area stratifications result as a consequence of the mobile nature of the troll fleet and demonstrate the limitations of the data when a particular sampling group of fish were caught in more than one district. All PMFC areas except Lynn Canal and Stephens Passage (where harvests were 55 and 89 fish, respectively) were sampled at overall rates above 19%. No quadrant was sampled at an overall rate less than 36%.

A total of 3,699 heads was marked with a strap tag during the 1983 calendar year chinook sampling program. The heads from 185 fish did not arrive at the lab and 316 heads did not contain a tag. Ten tags were found to be unreadable, 4 were lost prior to decoding, 1 contained an incongruous code, and 25 could not be associated with a gear type. The 3,158 tags which remained represented 306 different tag codes. The troll fishery accounted for 2,988 of these tags, the purse seine fishery for 113 tags, the gillnet fishery for 48 tags, and the fishtrap harvest for 9 tags. A statistical week of catch was recorded for all recovered tags.

Overall, 2,887 of the decoded tags associated with troll gear could be assigned to a quadrant, 2,589 could be associated with a PMFC area, and 2,324 with a district. There was, therefore, 101 tags in the decoded troll sample (3.3%) which could not be assigned to a quadrant strata, 2 such tags (1.8%) in the purse seine and 5 (1.0%) among the gillnet gear tags. Expansion factors for the analysis (which occurs by individual strata) varied greatly between the strata. There was an 11% (6 of 54 heads) overall loss of strap-marked heads from gillnet gear strata, and in one time area strata 75% (3 of 4) heads were lost prior to arrival at the tag lab (Table 8). The overall purse seine head loss was 9.2% (12 of 131 heads, Table 9). Overall, less than 5% of the strap tagged heads from the troll catch were lost prior to arrival at the head lab (Tables 10-12).

The contributions of wild and hatchery tagged releases to the commercial fisheries and the standard error of these estimates for each tag code by gear type, time, and area strata are presented in Appendix A for Alaska tagged releases (Volume I), British Columbia tagged releases (Volume II), Washington and Idaho releases (Volume III), and Oregon and California releases (Volume IV). Appendices are under separate cover and available from ADF&G upon request (see footnote 1, page 7). Researchers and managers interested in estimates of tag group contributions by time and area strata are encouraged to reference these appendices.

The estimated numbers of commercially caught coded wire tagged chinook salmon which belong to wild stocks are tabulated by jurisdiction, release site, and tag code (Table 13). Tags were recovered from stocks of 23 different release sites. Comparisons of tag contribution by region or release site for the wild stock data must be interpreted with caution since the tagged to untagged ratio is unknown. The numbers (No.) and standard errors (S.E.) in Table 13, therefore represent only the estimates of the number of tagged fish in the catch. Because of this, the estimated numbers of tagged wild stock fish in the commercial catch are not summed for region or release site. Wild stock tag codes corresponding to Columbia River drainage release sites were found relatively more frequently

Table 8. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook counted (Frac) from the 1983 fishtrap and gillnet fisheries in Southeastern Alaska by statistical week and ADF&G district.

Stat Week	Fishtrap			Gillnet District																				
	101			101			106			108			111			115			183			TOTAL		
	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
26				4	0	0.000							4	3	0.750							8	3	0.375
27				6	1	0.167	2	0	0.000				2	0	0.000							10	1	0.100
28	3	0	0.000	1	0	0.000	1	0	0.000				4	1	0.250	3	0	0.000				9	1	0.111
29	1	0	0.000	2	0	0.000	1	0	0.000				1	0	0.000							4	0	0.000
30	6	0	0.000	3	1	0.333	1	0	0.000													4	1	0.250
31				1	0	0.000																1	0	0.000
32				1	0	0.000	1	0	0.000				1	0	0.000							3	0	0.000
33				2	0	0.000																2	0	0.000
34							1	0	0.000				1	0	0.000							2	0	0.000
35				3	0	0.000													1	0	0.000	4	0	0.000
36																			1	0	0.000	1	0	0.000
37							3	0	0.000	2	0	0.000										5	0	0.000
38																								
39																								
40																1	0	0.000				1	0	0.000
Total	10	0	0.000	23	2	0.087	10	0	0.000	2	0	0.000	13	4	0.308	4	0	0.000	2	0	0.000	54	6	0.111

Table 9. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1983 purse seine fisheries in Southeastern Alaska by statistical week and ADF&G district.

Purse Seine District															
Stat Week	101			102			103			104			109		
	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
28										28	2	0.071			
29										7	3	0.429			
30	4	1	0.250							11	1	0.091			
31	5	0	0.000							8	1	0.125	2	0	0.000
32	1	0	0.000							11	1	0.091			
33										5	1	0.200	1	0	0.000
34	3	0	0.000	1	0	0.000	1	0	0.000	9	1	0.111			
35	5	1	0.200	2	0	0.000				3	0	0.000	2	0	0.000
Total	18	2	0.111	3	0	0.000	1	0	0.000	82	10	0.122	5	0	0.000

Purse Seine District															
Stat Week	110			112			113			114			TOTAL		
	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
28													28	2	0.071
29				2	0	0.000							9	3	0.333
30							2	0	0.000				17	2	0.118
31	4	0	0.000	4	0	0.000				3	0	0.000	26	1	0.038
32							5	0	0.000				17	1	0.059
33													6	1	0.167
34							2	0	0.000				16	1	0.063
35													12	1	0.083
Total	4	0	0.000	6	0	0.000	9	0	0.000	3	0	0.000	131	12	0.092

Table 10. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon (Frac) from the 1983 (calendar year) troll fisheries in Southeastern Alaska by statistical week and ADF&G district.

Stat Week	Troll District																										
	101			102			103			104 & 152			105			106			107			109			110		
	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
1-16	3	0	0.000	9	0	0.000	4	0	0.000	5	0	0.000	3	2	0.667							25	1	0.040			
21-22	6	1	0.167	9	1	0.111	21	0	0.000	66	2	0.030	16	0	0.000	3	0	0.000				40	1	0.025	22	3	0.136
23-24	8	0	0.000	80	1	0.012	34	0	0.000	180	7	0.039	10	0	0.000	24	0	0.000	8	0	0.000	102	2	0.020	38	3	0.079
27-28	11	1	0.091	34	3	0.088	10	1	0.100	21	2	0.095	2	0	0.000	7	0	0.000				35	1	0.029	12	1	0.083
29	17	3	0.176	19	1	0.053	10	0	0.000	11	1	0.091	10	0	0.000	3	1	0.333				39	13	0.333	10	0	0.000
30	15	2	0.133	14	1	0.071	5	0	0.000	6	0	0.000	2	0	0.000	6	1	0.167				39	2	0.051	17	0	0.000
31-32	35	3	0.086	17	1	0.059	12	1	0.083	15	2	0.133	4	1	0.250	12	1	0.083				78	1	0.013	18	0	0.000
40-53																						19	3	0.158			
Total	95	10	0.105	182	8	0.044	96	2	0.021	304	14	0.046	47	3	0.064	55	3	0.055	8	0	0.000	377	24	0.064	117	7	0.060

	Troll District																										
	112			113 & 154			114			115			116 & 157			181			183			189			TOTAL		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
1-16	1	0	0.000	34	3	0.088	13	0	0.000				16	0	0.000										113	6	0.053
21-22				140	4	0.029	7	0	0.000				61	1	0.016				1	0	0.000				392	13	0.033
23-24	13	0	0.000	315	4	0.013	35	2	0.057				144	6	0.042	4	0	0.000				11	2	0.182	1006	27	0.027
27-28	28	0	0.000	144	6	0.042							6	0	0.000										310	15	0.048
29	40	0	0.000	52	0	0.000	2	0	0.000	2	0	0.000	7	0	0.000				1	0	0.000				223	19	0.085
30	10	2	0.200	51	1	0.020							5	0	0.000										170	9	0.053
31-32	14	0	0.000	148	4	0.027	18	1	0.056				27	2	0.074				4	0	0.000				402	17	0.042
40-53				6	1	0.167																			25	4	0.160
Total	106	2	0.019	890	23	0.026	75	3	0.040	2	0	0.000	266	9	0.034	4	0	0.000	5	0	0.000	12	2	0.167	2641	110	0.042

Table 11. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1983 (calendar year) troll fisheries in Southeastern Alaska by statistical week and PMFC area.

PMFC Troll Area																											
Stat Week	NOOT			COOT			SOOT			SIN			SNTR			CIN			CNTR			LYNN			TOTAL		
	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
1-16	16	0	0.000	34	3	0.088	12	0	0.000	13	0	0.000	28	3	0.107				14	0	0.000				117	6	0.051
21-22	72	1	0.014	142	4	0.028	132	3	0.023	19	6	0.316	79	4	0.051	4	0	0.000	7	0	0.000				455	18	0.040
23-24	240	13	0.054	316	4	0.013	301	12	0.040	106	3	0.028	161	5	0.031	34	0	0.000	51	2	0.039				1209	39	0.032
27-28	6	0	0.000	144	6	0.042	37	6	0.162	47	5	0.106	49	2	0.041	7	0	0.000	30	2	0.067				320	21	0.066
29	8	0	0.000	57	0	0.000	33	1	0.030	36	4	0.111	59	13	0.220	3	1	0.333	42	0	0.000	2	0	0.000	240	19	0.079
30	10	0	0.000	51	1	0.020	14	0	0.000	29	3	0.103	58	2	0.034	6	1	0.167	10	2	0.200				178	9	0.051
31-32	31	2	0.065	148	4	0.027	38	3	0.079	52	4	0.077	100	2	0.020	12	1	0.083	33	1	0.030				414	17	0.041
40-53				6	1	0.167							19	3	0.158										25	4	0.160
Total	383	16	0.042	898	23	0.026	567	25	0.044	302	25	0.083	553	34	0.061	66	3	0.045	187	7	0.037	2	0	0.000	2958	133	0.045

Table 12. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1983 (calendar year) troll fisheries in Southeastern Alaska by statistical week and quadrant.

	Troll Quadrant														
	Northwest			Southwest			Northeast			Southeast			TOTAL		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
1-16	65	3	0.046	12	0	0.000	26	1	0.038	17	3	0.176	120	7	0.058
21-22	345	13	0.038	132	3	0.023	63	4	0.063	40	6	0.150	580	26	0.045
23-24	701	30	0.043	301	12	0.040	164	5	0.030	172	3	0.017	1338	50	0.037
27-28	159	6	0.038	37	6	0.162	79	2	0.025	68	5	0.074	343	19	0.055
29	73	0	0.000	33	1	0.030	99	13	0.131	49	5	0.102	254	19	0.075
30	77	1	0.013	14	0	0.000	66	4	0.061	45	4	0.089	202	9	0.045
31-32	245	10	0.041	38	3	0.079	110	1	0.009	68	6	0.088	461	20	0.043
40-53	6	1	0.167				19	3	0.158				25	4	0.160
Total	1671	64	0.038	567	25	0.044	626	33	0.053	459	32	0.070	3323	154	0.046

Table 13. Estimated number of tagged wild stock chinook salmon caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Region	Release Site	Tag Code	Brood Year	Number Tagged	Fishtrap No.	Fishtrap S.E.	Gillnet No.	Gillnet S.E.	Purse Seine No.	Purse Seine S.E.	Troll No.	Troll S.E.	Total No.	Total S.E.
Alaska	108-40	041725	1977	2819							1	1	1	1
	PORCUPINE R	111625	1978	17487							8	5	8	5
	STIKINE R	041963	1979	8568							7	5	7	5
	108-40-015	042146	1980	3209					1	(0.5			1	(0.5
	111-32-032	041662	1977	2549							3	1	3	1
	TAKU INLET	041661	1978	1474			2	2					2	2
British Columbia	ATMARKO R	022022	1977	57654							3	2	3	2
	CHILKO R	021658	1978	149523							2	2	2	2
	KITSUMKALUM R	022052	1977	58200					3	3	23	8	26	8
		021852	1979	48091					3	2	5	5	8	5
	MORICE R	022057	1978	45395							22	8	22	8
	NITINAT LK	021654	1977	13683							2	2	2	2
	NITINAT R	081926	1978	12594							31	9	31	9
		081927	1979	17154							73	16	73	16
	QUESNEL R	022043	1978	28448							5	5	5	5

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Table 13. Estimated number of tagged wild stock chinook salmon caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Region	Release Site	Tag Code	Brood Year	Number Tagged	Fishtrap		Gillnet		Purse Seine		Troll		Total	
					No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
British Columbia	MABEL LK	021601	1979	47621					3	3	27	9	30	10
		021625	1978	123530							6	3	6	3
		021638	1978	18730							4	3	4	3
		021755	1979	12773							5	4	5	4
	TETE JAUNE R	021922	1978	77740							4	1	4	1
Washington	LEWIS R	631858	1978	26242							14	6	14	6
		631859	1978	23402							2	2	2	2
		631902	1978	21187							2	2	2	2
		H10105	1978	29793							1	1	1	1
		632123	1979	25028							4	3	4	3
		632124	1979	27505							14	7	14	7
		632125	1979	25642							24	7	24	7
		632207	1979	26181							9	4	9	4
		632208	1979	24479							15	5	15	5
		632213	1979	14005							1	1	1	1
		632214	1979	26356					3	3	9	4	12	5
		H10202	1979	27440					4	3	2	1	6	4
		H10205	1979	30674							5	4	5	4
	COL. R BELOW BNVILLE	768677	1978	41195							48	9	48	9
		847686	1978	18533							17	6	17	6
		848276	1978	43482							23	5	23	5
		848278	1978	25620					6	5	5	2	11	5
		ERPR	1978	32441							6	3	6	3

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Table 13. Estimated number of tagged wild stock chinook salmon caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Region	Release Site	Tag Code	Brood Year	Number Tagged	Fishtrap		Billnet		Purse Seine		Troll		Total	
					No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
Washington	COL. R. BONNEVILLE	031733	1980	42924					3	2	12	6	15	6
	COL. R. JOHN D POOL	031734	1980	2869							5	4	5	4
	COL. R. DALTON PT	NDSM	1978	14341							12	3	12	3
		HD	1979	40737					4	3	162	18	166	18
		LN	1979	39476					3	2	28	5	31	5
	COL. R. BELOW McNARY	768676	1978	40398							3	2	3	2
		848682	1978	51558							12	5	12	5
	COL. R. McNARY	CE	1979	39005							20	7	20	7
		CEDY	1979	45582							17	5	17	5
		ERLN	1980	32478							4	3	4	3
Oregon	DESCHUTES R	071834	1978	266							1	1	1	1
		072145	1979	23031							5	3	5	3
		072146	1979	11788							1	(0.5	1	(0.5
		072147	1979	5211							9	5	9	5

in commercial catches (32 different tag codes of Columbia River drainage origin were recovered in the chinook salmon catch), of which tag code H0 was represented by 166 expanded recoveries alone.

Six Alaskan hatcheries contributed fish to the Southeastern Alaska fisheries; Crystal Lake, Deer Mountain, Little Port Walter, Snettisham, Whitman Cove, and Ship Creek (Table 14). Of the estimated 1,881 chinook salmon contributed by Alaskan hatcheries, Deer Mountain contributed 1,096 (58%) fish, Little Port Walter contributed 621 (33%) fish, and the remaining four hatcheries contributed the balance of 164 (9%). The troll fishery harvested the largest number (1,766 fish, or 93.9%) followed by the gillnet fishery (53 fish, or 2.8%), the purse seine fishery (50 fish, or 2.7%), and the fishtrap harvest (12 fish, or 0.6%). Approximately 0.64% of the total 1,983 commercial catch of chinook salmon are estimated to be of Alaska hatchery origin.

An estimated 49,552 chinook salmon from British Columbia hatchery tag groups, or 16.9% of the total commercial catch, were harvested in Southeastern Alaska fisheries (Table 15). Robertson Creek hatchery contributed the largest number of fish (44,367 fish, or 90% of the total estimated British Columbia contribution) followed by Quinsam River hatchery (2,618 fish, or 5.3%) and Big Qualicum River hatchery (993 fish, or 2.0%). The troll fishery harvested an estimated 45,971 (92.8%), purse seine gear took an estimated 3,398 (6.9%), gillnet gear took an estimated 130 (0.3%), and fishtrap gear took an estimated 23 fish of British Columbia hatchery origin.

Washington tagged hatchery releases contributed an estimated 9,309 chinook salmon to the Southeastern Alaska commercial catches (Table 16). Priest Rapids hatchery on the Columbia River contributed an estimated 2,908 (31% of total Washington tagged releases) fish, followed by Deschutes hatchery (1,889 fish, or 20%), and Quinalt Lake (942 fish, or 10%), and Washougal (887 fish, or 9.5%). A total of 51 different tag codes from 21 Washington state rearing facilities was recovered in 1983. An estimated 95.7% (8,907 fish) of the Washington tagged chinook salmon were caught by the troll fishery, and the remaining 4.3% (402 fish) were caught by the purse seine fishery.

Oregon tagged hatchery releases contributed an estimated 4,309 chinook salmon to the Southeastern Alaska harvest (Table 17). A total of 75 tag codes from 14 rearing facilities was recovered. Most of the Oregon hatchery fish were caught by the troll fishery (4,268 fish, or 99%), with catches by purse seine gear being 36 fish (0.8%), and gillnet gear being 5 fish (0.2%). Bonneville hatchery on the Columbia River contributed the largest number (2,429 fish, or 56% of total Oregon tagged releases), followed by Willamette hatchery (1,022 fish, or 24%).

A total of 7 CWTs (represented by 4 tag codes) was recovered from Hagerman NFH hatchery releases in Idaho (Table 18). A total of 18 fish in the 1983 Southeastern Alaska commercial catch are estimated to originate from Idaho.

One CWT was recovered from California tagged chinook salmon releases (Table 19). This fish was released from Feather River and the release group contribution totals 2 fish.

Table 14. Estimated number of chinook salmon of Alaska hatchery or experiment production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
CRYSTAL LAKE	106-44-031	041835	1977							3	1	3	1
		041931	1978							1	1	1	1
		041927	1979							2	1	2	1
		042042	1979			5	3	1	(0.5	34	10	40	10
		042043	1979			5	1			52	9	57	9
		042045	1979			2	1			8	4	10	4
		042202	1980					13	13	7	6	20	14
		Hatchery subtotal				12	3	14	13	107	15	133	20
DEER MOUNTAIN	101-47-025	041932	1978							71	9	71	9
		041938	1978	2	1	5	2	9	6	155	15	171	16
		041939	1978	2	2	2	2			126	14	130	14
		041940	1978			3	2	5	3	124	14	132	14
		041917	1979	1	(0.5	1	(0.5			57	12	59	12
		041943	1979			2	2			177	20	179	20
		041945	1979			3	2			157	18	160	18
		042039	1979	2	1	2	1			84	12	88	12
		042040	1979			2	2	3	3	99	17	104	17
		042121	1980					2	1			2	1
		Hatchery subtotal		7	2	20	5	19	7	1050	44	1096	45

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Table 14. Estimated number of chinook salmon of Alaska hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
LITTLE PORT WALTER	LITTLE PORT WALTER	031623	1977							1	(0.5	1	(0.5
		031632	1977							9	5	9	5
		031634	1977							3	1	3	1
		031635	1977							11	6	11	6
		031636	1977							2	1	2	1
		031637	1978							4	1	4	1
		031658	1978									+	
		031661	1978							2	1	2	1
		031703	1978							32	5	32	5
		031704	1978							41	7	41	7
		031706	1978							40	6	40	6
		031707	1978							18	4	18	4
		031708	1978							31	5	31	5
		031709	1978							80	10	80	10
		031710	1978							68	7	68	7
		031711	1978							68	15	68	15
		031712	1978							21	7	21	7
		031713	1978							34	7	34	7
		031714	1978							15	4	15	4
		031715	1978							16	4	16	4
		031716	1979			3	1	10	4	52	14	65	14
		031717	1979			3	2	1	(0.5	52	11	56	11
		031745	1980							1	(0.5	1	(0.5
		031753	1980					1	(0.5			1	(0.5
		031754	1980					1	(0.5			1	(0.5
	LARRY LK	031624	1977							1	1	1	1
Hatchery subtotal						6	2	13	4	602	32	621	32
SHIP CREEK	HALIBUT COVE LAGOON	042013	1979							5	4	5	4

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Table 14. Estimated number of chinook salmon of Alaska hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Billnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
SNETTISHAM	111-34-000	042049	1979			9	(0.5			2	1	11	1
WHITMAN LAKE	HERRING COVE	101-45 044005	1980	5	2	6	3	3	1			14	3
	CARROLL R	101-45 B40708	1981					1				1	(0.5
	Hatchery subtotal			5	2	6	3	4	1			15	3
Alaska Total				12	3	53	7	50	15	1766	57	1881	59

Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
BABINE RIVER	FULTON R	022000	1978			2	2			47	14	49	14
	BABINE R	021856	1979							51	13	51	13
	Hatchery subtotal						2	2			98	19	100
BIG QUALICUM RIVER	BIG QUALICUM R	021824	1979							149	56	149	56
		021825	1979							64	45	64	45
		021826	1979							95	73	95	73
		021810	1980							5	3	5	3
		021944	1980							392	390	392	390
		022223	1981					3	3			3	3
	LITTLE QUALICUM R	021834	1979					37	36	248	96	285	102
		Hatchery subtotal						40	36	953	414	993	415
	BIRKENHEAD RIVER	BIRKENHEAD R	021761	1978							5	5	5
021858			1979							11	4	11	4
Hatchery subtotal								16	6	16	6		
CAPILANO RIVER	CAPILANO R	021830	1979							12	11	12	11
		021735	1980							7	4	7	4
		021940	1980							12	12	12	12
		021941	1980							12	12	12	12
		021955	1980							9	9	9	9
		022151	1980							15	10	15	10
		022152	1980							16	11	16	11
		022153	1980					4	3			4	3
		Hatchery subtotal						4	3	83	27	87	27

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Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1983 (calendar year) Southeast Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
CHEMAINUS RIVER	CHEMAINUS R	021801	1979							3	2	3	2
		022004	1979							9	4	9	4
		Hatchery subtotal								12	4	12	4
COMICHAN RIVER CDP	LOWER COMICHAN R	021846	1979							2	1	2	1
FULTON RIVER	BABINE R	022219	1977							5	5	5	5
KAKWEIKEN RIVER	KAKWEIKEN R	021808	1979							2	2	2	2
KISPIDY RIVER CDP	KISPIDY R	021953	1980					3	3	5	3	8	4
KITIMAT RIVER	HIRSCH CR KITIMAT R	021756	1980							24	7	24	7
		021614	1978							117	60	117	60
		022001	1979			1	(0.5			144	34	145	34
		021844	1980							15	5	15	5
		Hatchery subtotal				1	(0.5			300	68	301	68
LITTLE QUALICUM R	LITTLE QUALICUM R	022244	1980					38	38	20	19	58	42
		022419	1981					22	21			22	21
		Hatchery subtotal						60	43	20	19	80	47

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Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
MASSET CDP	YAKOUN R	021842	1979							12	5	12	5
NANAIMO RIVER CDP	NANAIMO R	081929	1979							51	24	51	24
		021600	1980			13	12	23	10	36	15		
		021909	1980					2	2	2	2		
		Hatchery subtotal				13	12	76	26	89	28		
NITINAT RIVER	LITTLE NITINAT R	021841	1980					6	6	10	3	16	6
PORT RENFREW CDP	SAN JUAN R	021849	1979					12	6	60	14	72	15
PUNTLEDGE RIVER	PUNTLEDGE R	021752	1978							3	2	3	2
		021753	1978							17	6	17	6
		021828	1979					8	8	52	13	60	15
		021854	1979							16	16	16	16
		021947	1980			7	6			12	11	19	12
		021948	1980			20	13			106	34	126	36
Hatchery subtotal				27	14	8	8	206	42	241	44		

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Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
QUINSAM RIVER	QUINSAM R	021759	1978							786	139	786	139
		021757	1979							782	149	782	149
		021758	1979	23	22	22	(0.5	15	13	617	133	677	135
		021657	1980					8	7	70	40	78	40
		021943	1980			48	26			173	98	221	101
		021950	1980					18	12	18	17	36	20
		022303	1981			8	7	13	8			21	10
		022304	1981					10	7			10	7
		082123	1981					2	1			2	1
		082130	1981					1	(0.5			1	(0.5
		082131	1981					1	(0.5			1	(0.5
		082135	1981			2	1					2	1
		082137	1981					1	(0.5			1	(0.5
		Hatchery subtotal		23	22	80	27	69	22	2446	265	2618	268
ROBERTSON CREEK	ROBERTSON CR	021606	1978					9	6	38	9	47	10
		021615	1978					295	207	4167	766	4462	793
		021635	1978					213	150	5471	736	5684	751
		021751	1978							24	8	24	8
		022003	1978							8	3	8	3
		021715	1979					9	6	46	8	55	10
		021805	1979					5	2	76	12	81	12
		021806	1979							102	15	102	15
		021807	1979							46	8	46	8
		021827	1979					731	350	11031	1286	11762	1332
		021829	1979					1226	428	18440	1699	19666	1752
		021661	1980			20	20	677	227	1658	388	2355	449
		021908	1980							22	6	22	6
		021936	1980					1	(0.5	19	6	20	6
		021937	1980					5	3	28	8	33	8
		Hatchery subtotal				20	20	3171	645	41176	2403	44367	2488

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Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No. S.E.	Gillnet No. S.E.	Purse Seine No. S.E.	Troll No. S.E.	Total No. S.E.
SNOOTLI CREEK	ATNARKO R	021732	1978				92 14	92 14
	LOWER ATNARKO R	022154	1981			5 4		5 4
			Hatchery subtotal			5 4	92 14	97 14
TENDERFOOT CREEK	TENDERFOOT CR	021946	1981			2 1		2 1
TLUPANA RIVER	CONUMA R	021837	1979			5 4	391 35	396 35
		021840	1980				6 5	6 5
			Hatchery subtotal			5 4	397 35	402 35
British Columbia Total				23 22	130 36	3398 647	45971 2451	49522 2535

Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
COULTER CREEK	COULTER CR	632063	1979							49	49	49	49
COMLITZ	COMLITZ R	631942	1978							44	44	44	44
		631951	1978							64	64	64	64
	LOWER COLUMBIA TRIBE	632154	1979							457	190	457	190
		632159	1979							5	4	5	4
	Hatchery subtotal									570	205	570	205
DESCHUTES	CAPITOL LK	632103	1979							1889	1888	1889	1888
ELWHA CHANNEL	ELWHA R	631919	1978							135	78	135	78
GRAYS RIVER	W FK GRAYS R	631646	1978							34	34	34	34
		631833	1978									+	
		631937	1978							20	19	20	19
		632043	1979							67	46	67	46
	Hatchery subtotal									121	60	121	60
GREEN RIVER	BIG SDOOS CR	631944	1979							123	123	123	123

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
KALAMA FALLS	KALAMA R	631746	1977							11	10	11	10
		632105	1979					129	94	193	86	322	127
		632036	1980							78	78	78	78
		Hatchery subtotal						129	94	282	117	411	149
KLICKITAT	KLICKITAT R	631750	1977							3	2	3	2
		631947	1979							146	102	146	102
		Hatchery subtotal								149	102	149	102
LEWIS RIVER	LEWIS R	631813	1978							1	1	1	1
		632021	1979							10	4	10	4
		632160	1979							26	8	26	8
		Hatchery subtotal								37	9	37	8
LOWER KALAMA	FALLERT CR	632006	1979					72	71	169	86	241	111
LUMMI SEA PONDS	LUMMI BAY	050727	1979							3	2	3	2
PRIEST RAPIDS	COLUMBIA R	631821	1978							171	98	171	98
		631857	1978							4	4	4	4
		631948	1979							2382	405	2382	405
		632155	1980							289	250	289	250
		632261	1980					62	62			62	62
		Hatchery subtotal						62	62	2846	486	2908	489

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
PUYALLUP	VOIGHTS CR	632020	1979							79	60	79	60
QUINALT LAKE	QUINALT LK	050518	1978							17	6	17	6
		050519	1978							6	2	6	2
		050334	1980							7	4	7	4
	QUEETS R SALMON R	050523	1978							14	9	14	9
		050525	1978							41	21	41	21
		050661	1979							794	266	794	266
		053101	1979					3	3	60	12	63	12
	Hatchery subtotal							3	3	939	267	942	267
QUINALT NFH	COOK CR	050338	1978							18	13	18	13
		050328	1979							165	68	165	68
		050724	1979							71	70	71	70
		050725	1979							73	72	73	72
		050835	1980					1	(0.5			1	(0.5
		050836	1980					4	3			4	3
	Hatchery subtotal							5	3	327	122	332	122
SAMISH	FRIDAY CR	632101	1979							5	3	5	3
		632102	1979							10	4	10	4
	Hatchery subtotal									15	5	15	5
SEA RESOURCES	CHINOOK R	632061	1979					131	131	215	214	346	250

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
SKOOKUM CREEK	S FK NOOKSACK R	050726	1979							49	48	49	48
SOLE DUCK	TAFT CR	631757	1977							4	1	4	1
	NDH R	632110	1979							17	7	17	7
	Hatchery subtotal									21	7	21	7
SPEELYAI	LEWIS R	631920	1978							2	1	2	1
WASHOUGAL	WASHOUGAL R	631946	1978							77	76	77	76
		632153	1979							738	207	738	207
		632251	1980							72	71	72	71
Hatchery subtotal										887	232	887	231
Washington Total								402	186	8907	2023	9309	2031

Table 17. Estimated number of chinook salmon or Oregon hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
ANADROMOUS INC	COOS BAY	623503	1979							21	9	21	9
		623603	1979					2	1	2	1	4	1
		624003	1979					7	4	15	6	22	7
		Hatchery subtotal						9	4	38	11	47	11
BONNEVILLE	TANNER CR	071661	1977							5	2	5	2
		071733	1978							38	26	38	26
		071735	1978							107	61	107	61
		071734	1979							2105	277	2105	277
		072207	1979							84	12	84	12
		072141	1980					14	13	31	31	45	33
		072142	1980							12	12	12	12
		072143	1980							3	2	3	2
		072506	1980							11	4	11	4
		072507	1980							19	7	19	7
		Hatchery subtotal						14	13	2415	287	2429	287
CEDAR CREEK	CEDAR CR (NESTUCCA)	071851	1978							5	4	5	4
		071852	1978							9	8	9	8
		072004	1979							7	3	7	3
		072360	1980							4	3	4	3
	THREE RIVERS	072230	1979							14	6	14	6
		Hatchery subtotal								39	12	39	11

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Table 17. Estimated number of chinook salmon of Oregon hatchery or experiment production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
DOWSEA FARMS	SIUSLAW BAY	624825	1978							1	(0.5	1	(0.5
		624826	1979							11	5	11	5
	SWEET CR (SIUSLAW)	072241	1979							14	6	14	6
		Hatchery subtotal								26	8	26	7
ELK RIVER	ELK R	072008	1978							4	3	4	3
		072242	1979							10	5	10	5
		072243	1979							29	8	29	8
		072244	1979					3	3	17	7	20	7
		072245	1979							10	4	10	4
		Hatchery subtotal						3	3	70	13	73	13
FALL CREEK	FALL CR (ALSEA)	071855	1978							2	1	2	1
		072233	1979							4	3	4	3
		Hatchery subtotal								6	3	6	3
MARION FORKS	N SANTIAM R. MINTO	072251	1979							1	(0.5	1	(0.5
		072252	1979			3	3			81	18	84	18
		072253	1979							70	18	70	18
		072254	1979							19	6	19	6
		Hatchery subtotal				3	3			171	26	174	26

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Table 17. Estimated number of chinook salmon of Oregon hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
MCKENZIE	MCKENZIE R	072049	1978							3	1	3	1
		072050	1978							2	1	2	1
		072053	1978							6	6	6	6
		072217	1979							34	9	34	9
		072218	1979							14	5	14	5
		072219	1979							40	17	40	17
		072220	1979							75	16	75	16
		072221	1979							16	6	16	6
		072222	1979							38	9	38	9
		072054	1980							31	30	31	30
		072517	1980							4	3	4	3
		Hatchery subtotal								263	41	263	41
OREGON AQUA-FOODS	COOS BAY	603504	1980							5	4	5	4
	YADJINA BAY	603111	1978									+	
		603113	1978							2	1	2	1
		603342	1979							34	27	34	27
		603503	1980							17	11	17	11
		Hatchery subtotal								58	29	58	29
ROCK CREEK	N UMPQUA R	072228	1979							2	1	2	1
	ROCK CR (UMPQUA)	072229	1979							4	2	4	2
		Hatchery subtotal								6	2	6	2

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Table 17. Estimated number of chinook salmon of Oregon hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No. S.E.	Gillnet No. S.E.	Purse Seine No. S.E.	Troll No. S.E.	Total No. S.E.
SALMON RIVER	SALMON R	071849	1978				23 10	23 10
		071850	1978				33 11	33 11
		072239	1979				38 21	38 21
		072240	1979				28 10	28 10
		072505	1980			4 4	20 10	24 10
		Hatchery subtotal				4 4	142 29	146 29
SOUTH SANTIAM	WILLAMETTE R. FALLS	071948	1978				2 1	2 1
TRASK	TRASK R	072121	1979		2 2		12 4	14 4
		072503	1980				4 3	4 3
		Hatchery subtotal			2 2		16 5	18 5

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Table 17. Estimated number of chinook salmon of Oregon hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in unknown sampling strata (continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
WILLAMETTE	MID FK WILLAMETTE R	072040	1978							2	1	2	1
		072041	1978									+	
		072043	1978									+	
		072044	1978							5	5	5	5
		072045	1978							2	1	2	1
		072046	1978									+	
		072224	1979							18	7	18	7
		072225	1979							84	20	84	20
		072226	1979							436	133	436	133
		072302	1979							91	31	91	31
		072303	1979							100	15	100	15
		072304	1979							2	1	2	1
		072305	1979							144	32	144	32
		072306	1979							9	5	9	5
		072307	1979					6	3	115	33	121	33
		072237	1980							6	4	6	4
		072418	1980							2	1	2	1
Hatchery subtotal								6	3	1016	146	1022	146
Oregon Total						5	4	36	15	4268	329	4309	329

Table 18. Estimated number of chinook salmon of Idaho hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
HAGERMAN NFH	COL. R BELOW BNVILLE	050420	1978							6	4	6	4
		102210	1980			1	0	3	3	2	2	6	3
	SNOKE R	050527	1979									+	
		102211	1980							6	6	6	6
	Hatchery subtotal						1	0	3	3	14	7	18
Idaho Total						1	0	3	3	14	7	18	8

Table 19. Estimated number of chinook salmon of California hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E.). A + indicates that one or more tags were recovered in an unknown sampling strata.

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
FEATHER RIVER	S.F. BAY. TIDBURN	065818	1979							2	1	2	1
California Total										2	1	2	1

The total contribution of coded wire tagged hatchery releases to Southeastern Alaska's 1983 (calendar year) commercial fisheries was estimated to be 65,041 chinook salmon, with an associated standard error of 3,257 fish (Table 20). Since some of the strata were not sampled (the winter fishery was the principal strata with limited sampling) and contribution estimates were made only for sampled strata, this total estimate probably underestimates the actual contribution of hatchery fish. With the exception of Alaska releases, not all hatchery releases contain coded wire tagged fish. An unknown number of untagged fish from non-Alaskan hatcheries therefore occur in the commercial catch. Similarly, comparisons between hatcheries and or geographical areas may be misleading because of release groups which are not represented by a tag code. Finally, nonadherence to procedures established by the PMFC for reporting releases of untagged fish adds an unknown bias to the contribution estimates.

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Table 20. Estimated number of tagged releases of chinook salmon of hatchery or experimental production caught in the 1983 (calendar year) Southeastern Alaska commercial fisheries (No.) and the associated standard error (S.E).

Fishtrap		Gillnet		Purse Seine		Troll		Total	
No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
35	22	189	37	3889	669	60928	3188	65041	3257

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